Projects Must Be Led, Not Just Managed. Why and How?

Dr. Alexander Laufer, Director

Center for Project Leadership Columbia University

Why practitioners should care about project management **theory**?

*It is the **theory** that describes what we can **observe**.*

Albert Einstein

*Two people with **different mental models** can observe the same event and describe it differently, because they have looked at different details. . .*
*They **observed selectively**.*

Peter Senge

Since mental models affect what **we see,**
they will also affect what **we do!**

*There is nothing so **practical** as a good **theory***

Kurt Lewin

So what can research tell practitioners about the theory of project management (PM)?

A Comprehensive Review: 1994

"Modern project management… emerged… in a period
that was **more inflexible** and **less complex** and
Where events **changed less rapidly** than today…

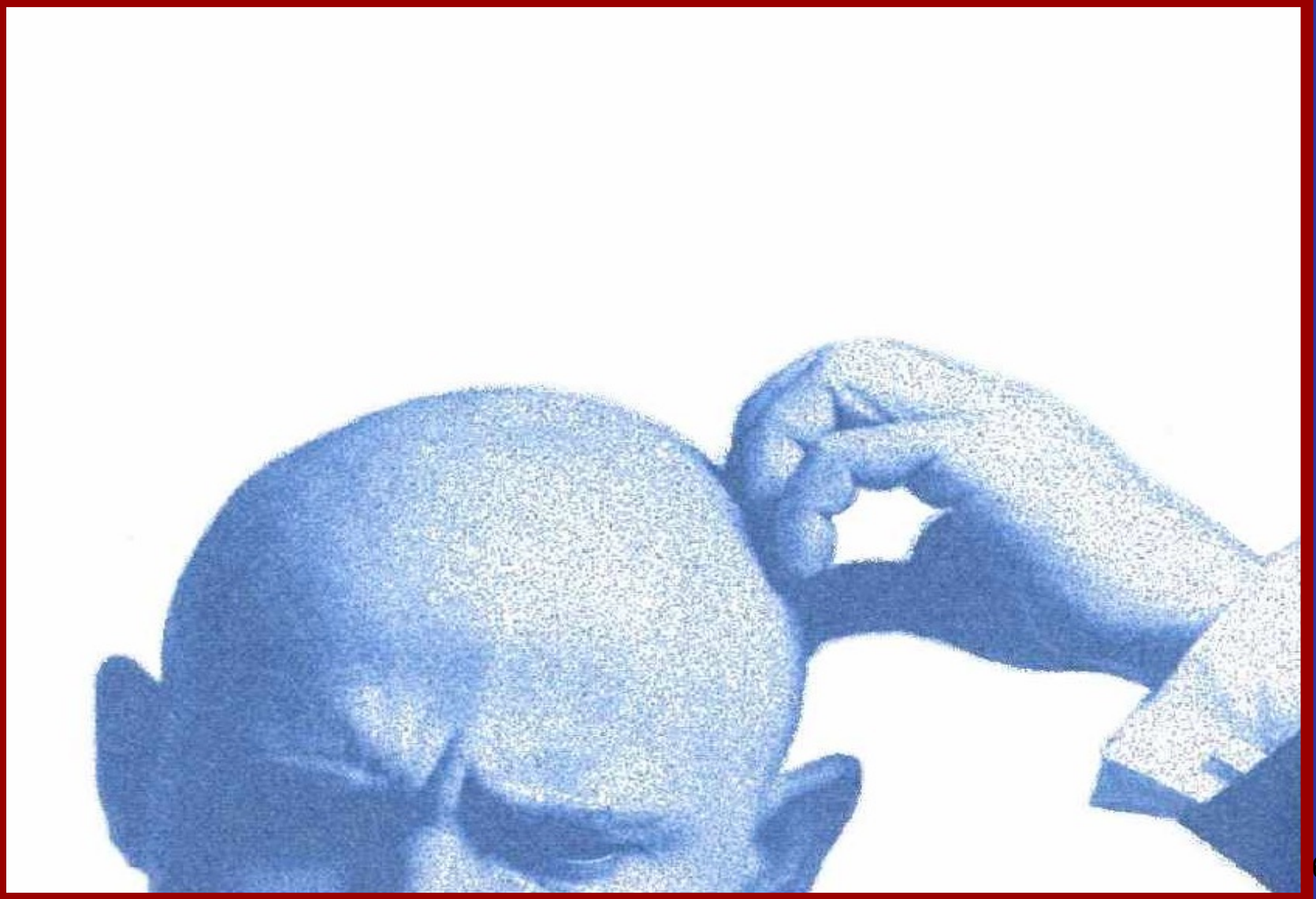
It is [the theory of project management] in many respects still **stuck in a 1960s** time warp."

P.W.G. Morris. 1994. The Management of Projects

Titles of Recent Research Articles on PM Theory

- "The need for **new paradigms** for complex projects" (1999)
- "The **underlying theory** of project management is **obsolete**" (2002)
- **Rethinking** Project Management: Researching the actuality of projects" (2006)
- "The **changing paradigms** of project management" (2007)
- "Exploring research in project management **- nine schools** of project management research" (2007
- "**Rethinking** Project Management" (The Engineering Project Review, 2008)
- "Project Management: **At the Crossroads?"** (2008)

So where are we theory wise?



Articles on the Applicability of Research in General Management

- "**Bridging** the relevance **Gap**: Aligning stakeholders in the future of management research" (2001)
- "**Gapping** the relevance **bridge**: fashions meet fundamentals in management research" (2001)
- "Introduction: can we **bridge** the rigour-relevance **gap**?"(2009)
- "Why the rigour-relevance **gap** in management research is **unbridgeable**" (2009)

What may happen when the gap is not bridged and the theories are not applicable?

"**Bad** management **theories** are destroying **good** management **practices**"

Sumantra Ghoshal (2005)

The Poor Statistics of Project Results

Examples from software projects

- **31%** of the projects were **canceled** before completion.
- **53%** of the projects cost almost **double** their original estimate. (The Standish Group, 1995)

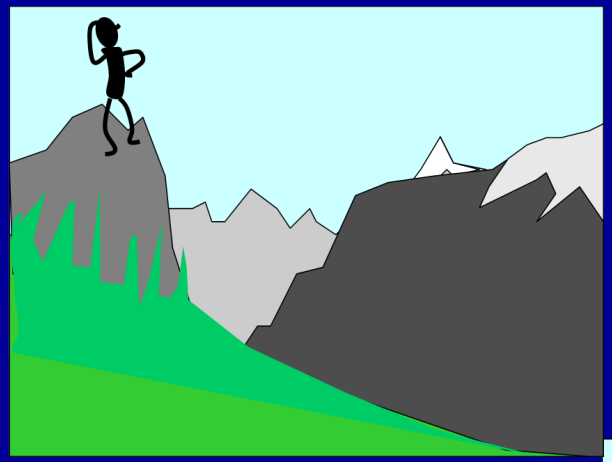
- "Only **one in eight** information technology projects can be considered **truly successful**." (McManus and Wood-Harper, 2007)

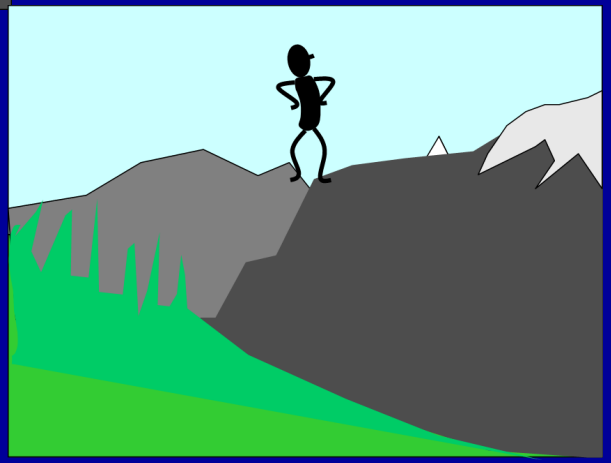
The Poor Statistics of Project Results

Examples from construction projects:
(Large Infrastructure)

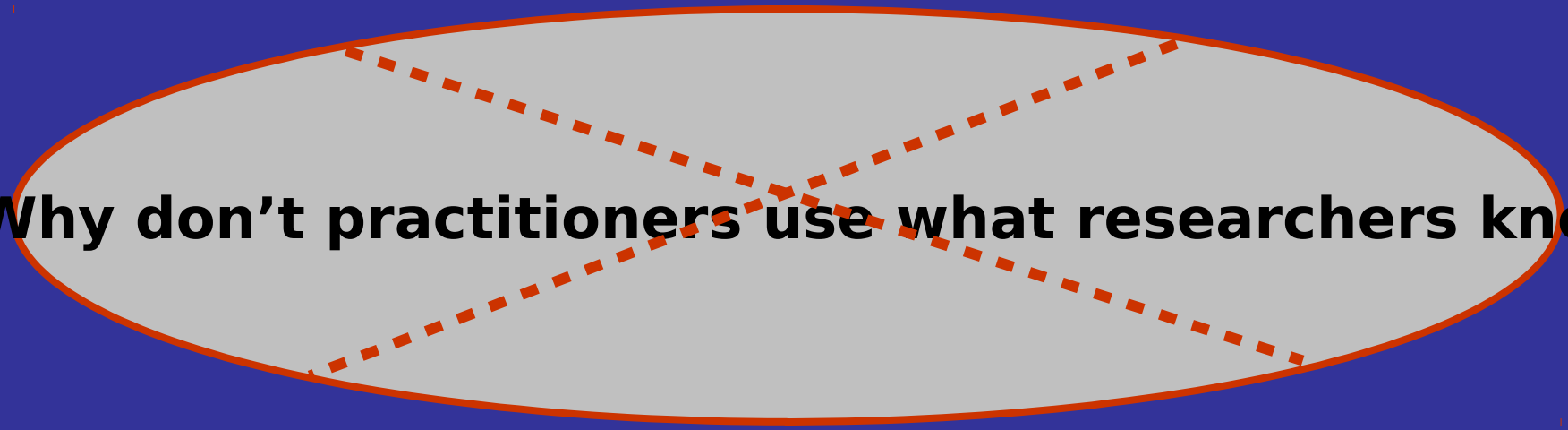
- The total capital **cost overrun** of ten US rail transit projects was **61%** (range -10 to +106%). (Flyvbjerg et al. 2003)

- The average capital **cost overrun** for eight Swedish road projects was **86 %** (range 2 to 182%). (Flyvbjerg et al. 2003)





Learning from Practitioners



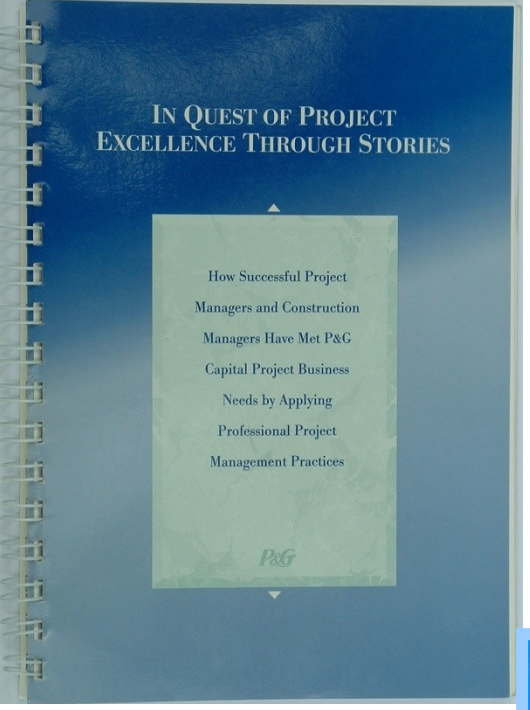
Why don’t researchers use what practitioners know?

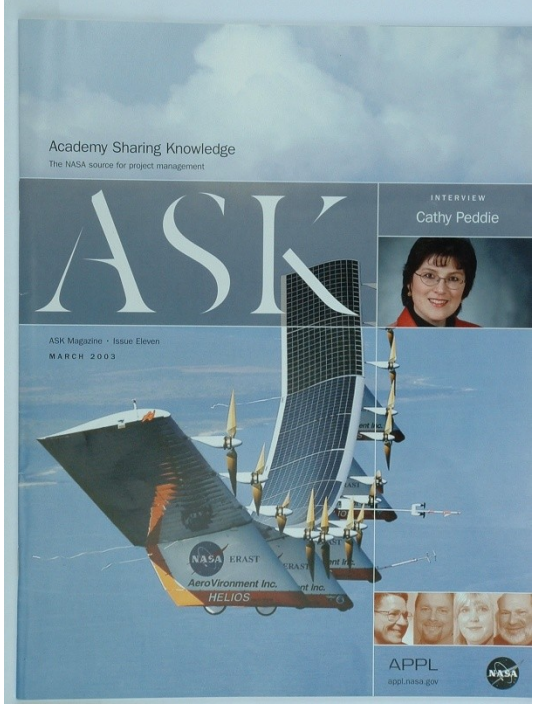
Developing a "Theory of Practice": Research Approach

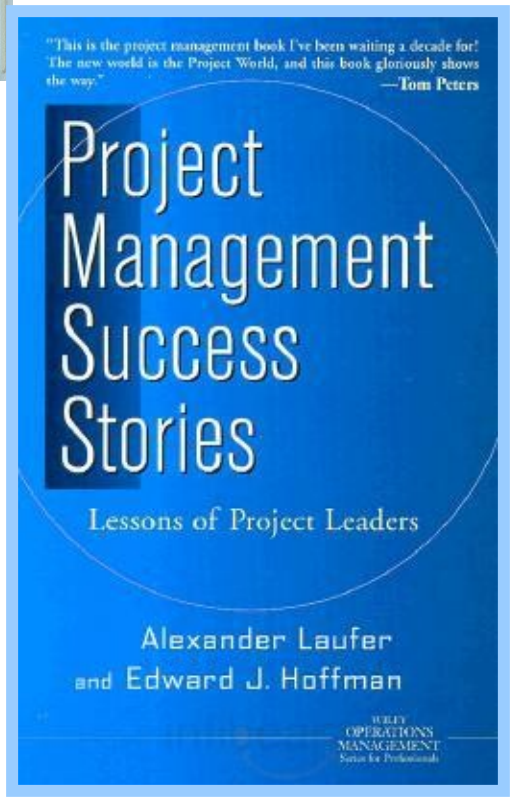
- ✓ Case studies and stories collected from more than 150 project managers from over twenty organizations, selecting "the best" practitioners.
- ✓ Field studies using structured research tools (interviews and observations).
- ✓ Consulting work to test interim findings (practices).

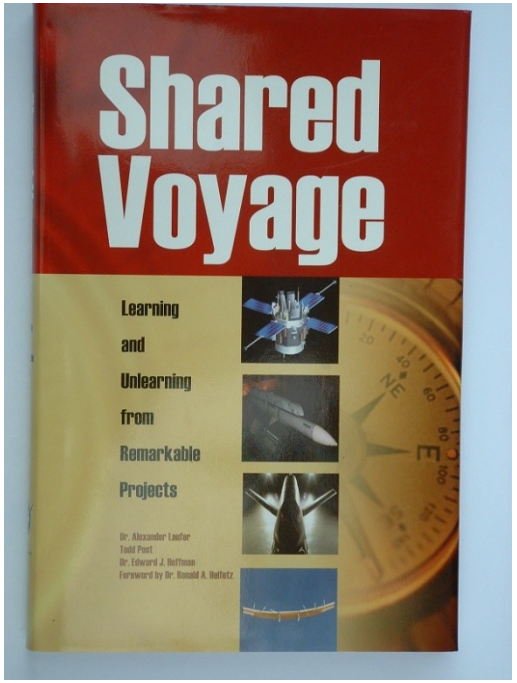
Affiliation of the Project Managers

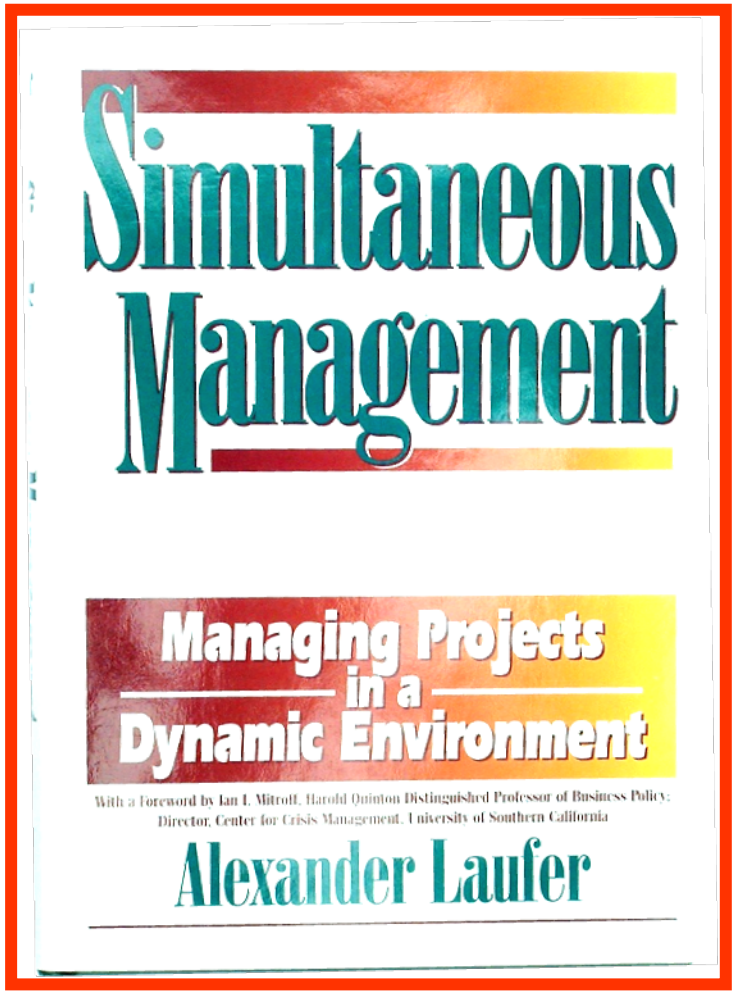
- AeroVironment
- California Institute of Technology
- Fluor
- Johns Hopkins University Applied Physics Laboratory
- Lockheed Martin
- NASA
- Procter & Gamble
- Raytheon
- Starsys Research Inc.
- The US Air Force

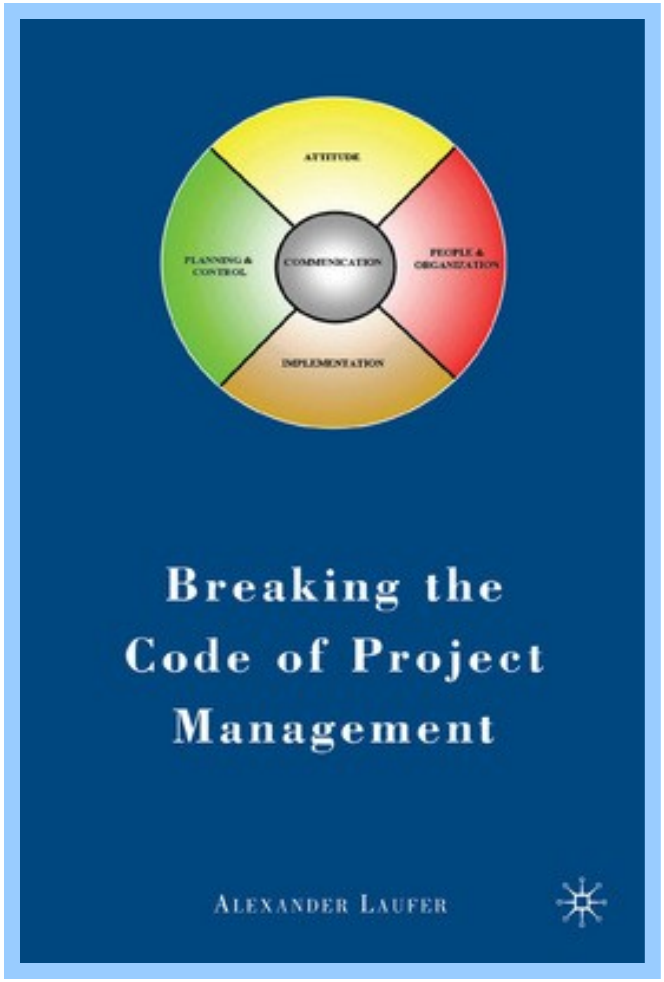

IN QUEST OF PROJECT EXCELLENCE THROUGH STORIES
How Successful Project Managers and Construction Managers Have Met P&G Capital Project Business Needs by Applying Professional Project Management Practices
P&G


Academy Sharing Knowledge
The NASA source for project management
ASK
INTERVIEW
Cathy Peddie
ASK Magazine · Issue Eleven
MARCH 2003
NASA ERAST
AeroVironment Inc.
HELIOS
APPL
appl.nasa.gov


"This is the project management book I've been waiting a decade for! The new world is the Project World, and this book gloriously shows the way."
—Tom Peters
Project Management Success Stories
Lessons of Project Leaders
Alexander Laufer and Edward J. Hoffman
WILEY OPERATIONS MANAGEMENT Series for Professionals


Shared Voyage
Learning and Unlearning from Remarkable Projects
Dr. Alexander Laufer
Todd Post
Dr. Edward J. Hoffman
Foreword by Dr. Ronald A. Hoffetz


Simultaneous Management
Managing Projects in a Dynamic Environment
With a Foreword by Ian I. Mitroff, Harold Quinton Distinguished Professor of Business Policy; Director, Center for Crisis Management, University of Southern California
Alexander Laufer


ATTITUDE
PLANNING & CONTROL
COMMUNICATION
PEOPLE & ORGANIZATION
IMPLEMENTATION
Breaking the Code of Project Management
ALEXANDER LAUFER

The Five Principles of Managing Projects in a Dynamic Environment: Color Coded

Growth: ***Plan and Control to Embrace Change***

Earth: ***Create a Results-Oriented Focus***

Sunshine and optimism: ***Develop a Will to Win***

Heart: ***Collaborate through Interdependence and Trust***

The Five Principles of Managing Projects in a Dynamic Environment

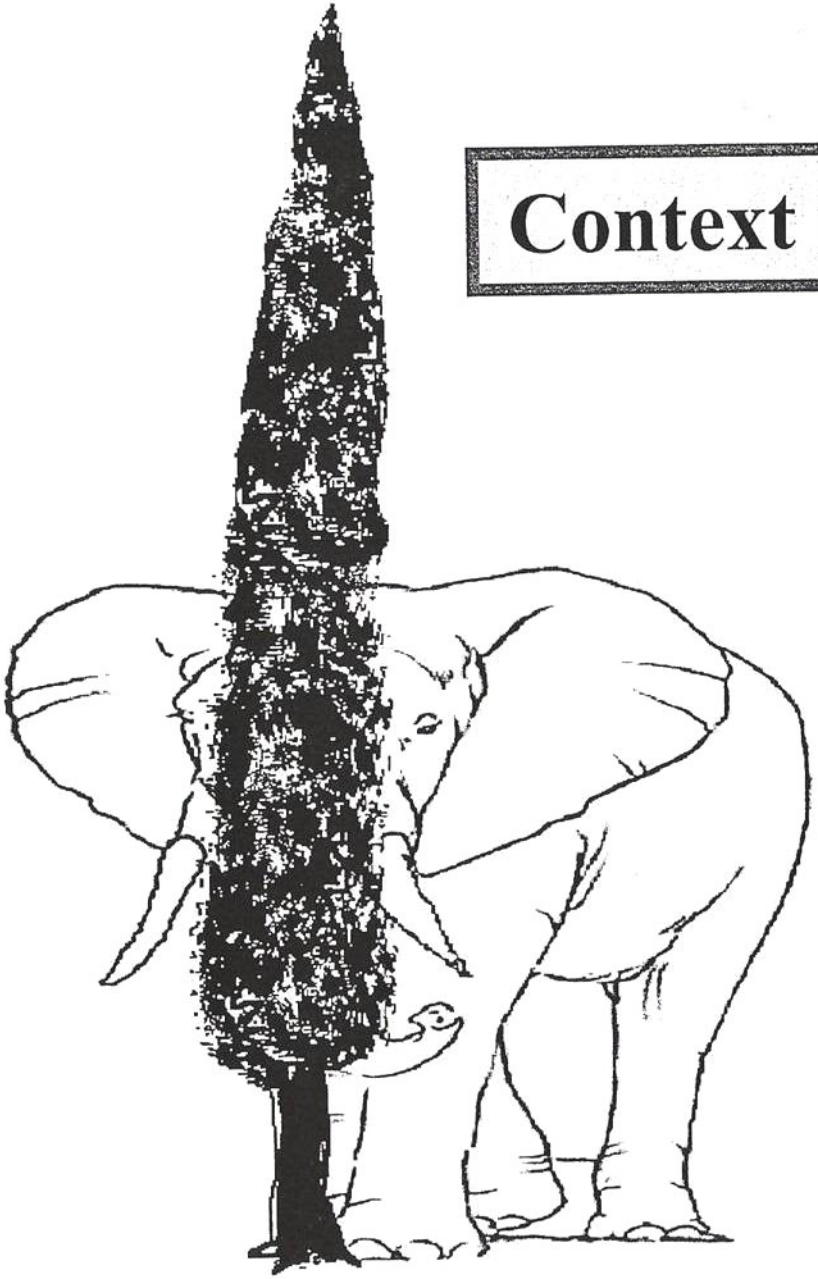
Essence of the Principles

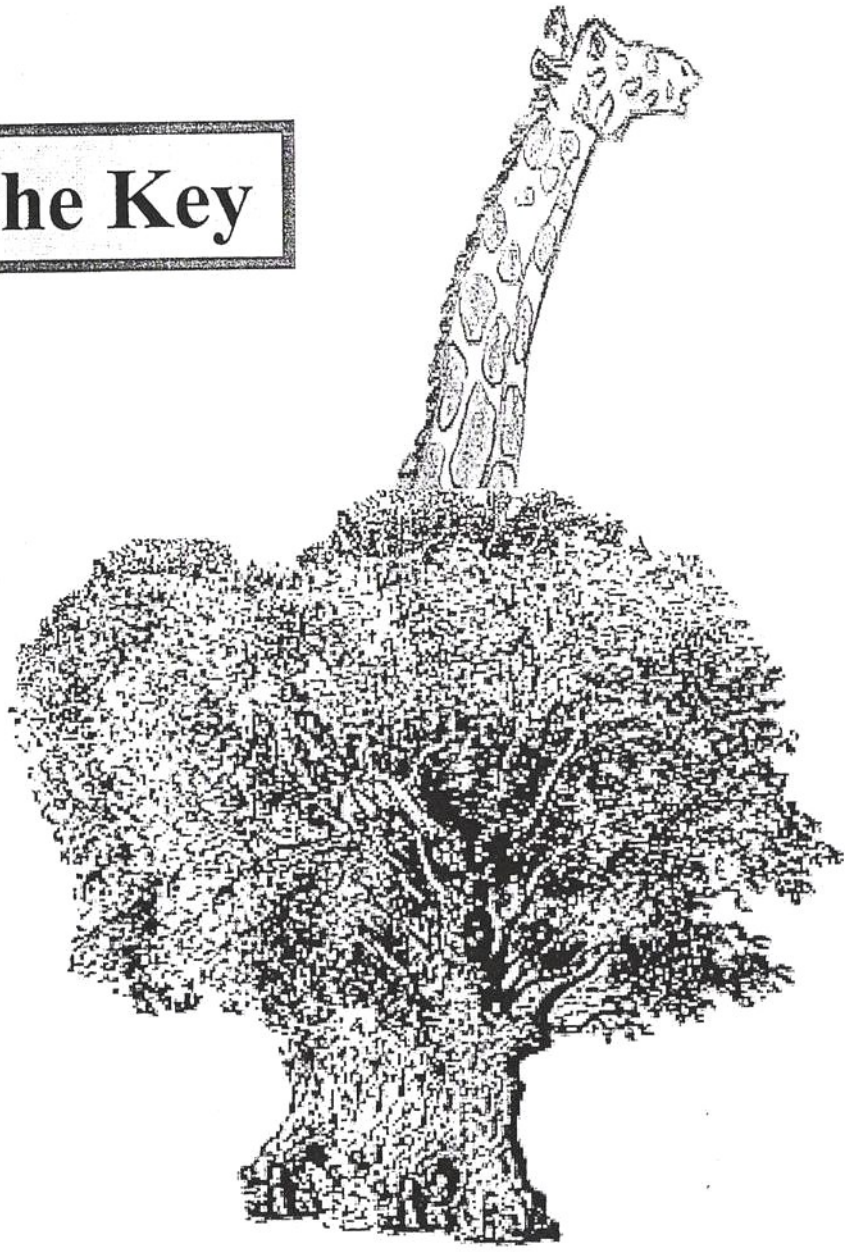
The Human Metaphor

The meta-principle

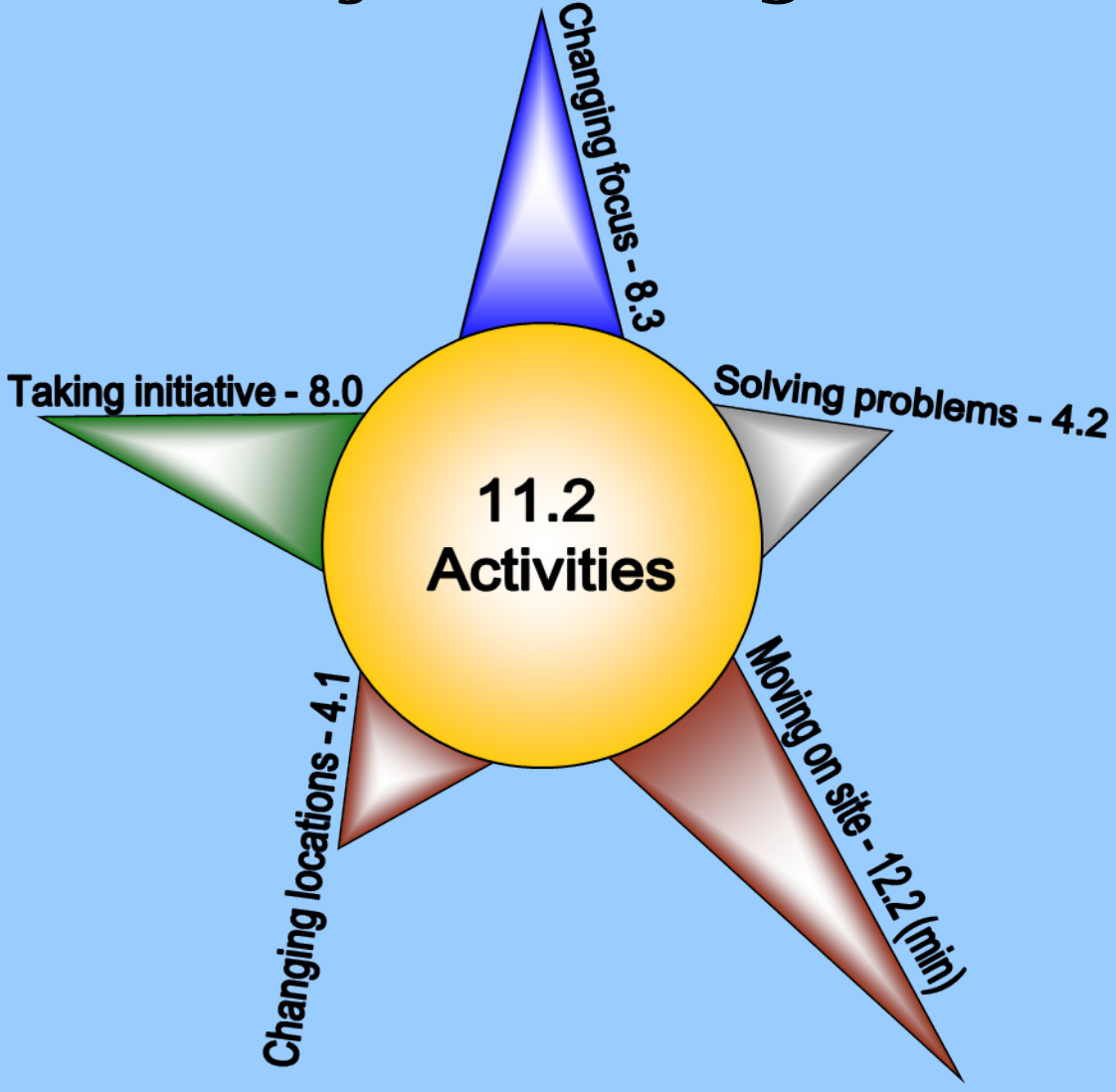
The application of the principles is dependent on the project context

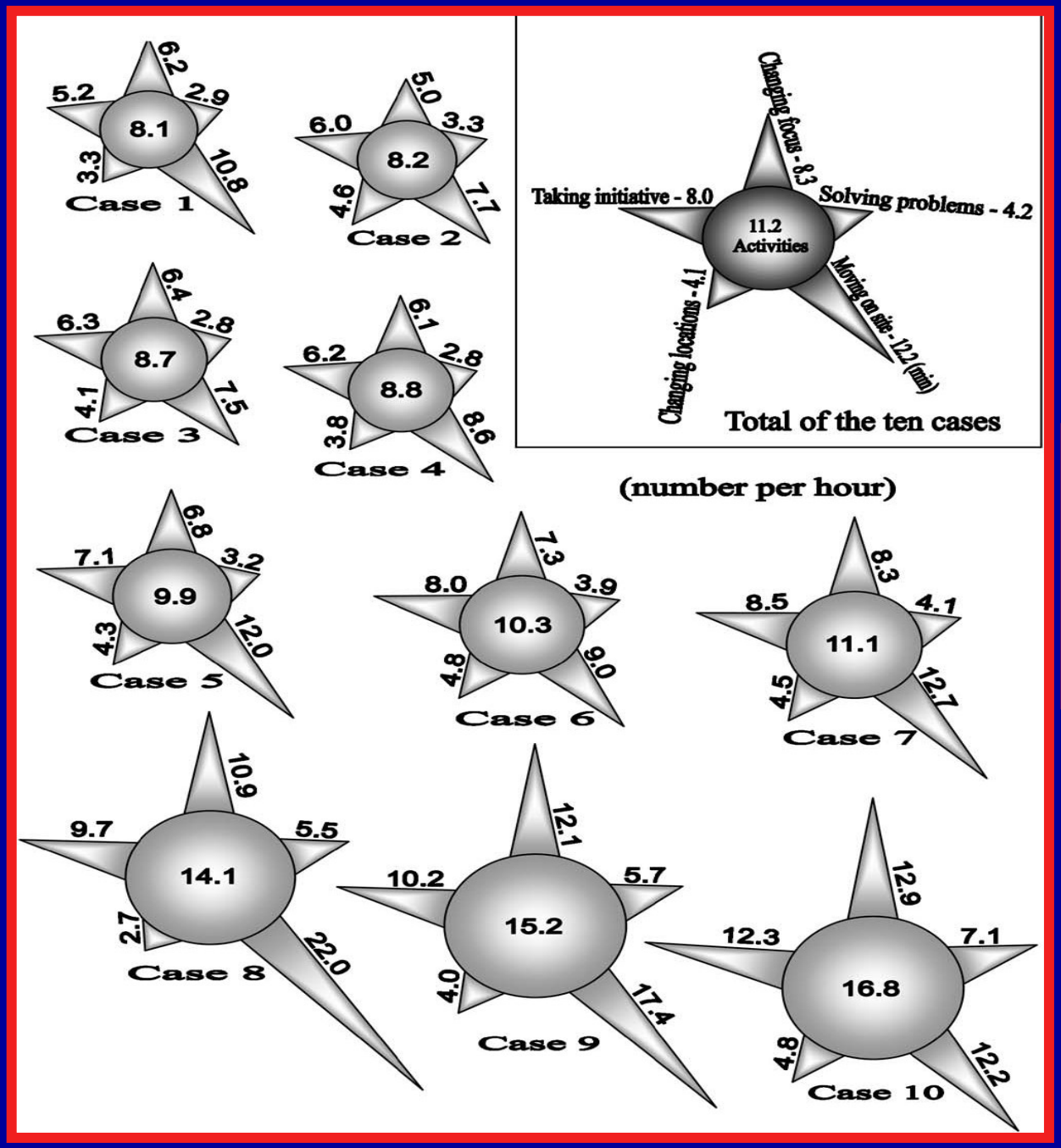
Context is the Key





Star Model of Excellent On-site Project Managers





Managerial Dynamics Exhibited by Ten Project Managers

Dynamic Environment: Contextual Factors

Complexity

- Project size
- Execution stage
- Degree of repetitiveness of the project
- Exceptional congestion of the site and its surroundings

Uncertainty

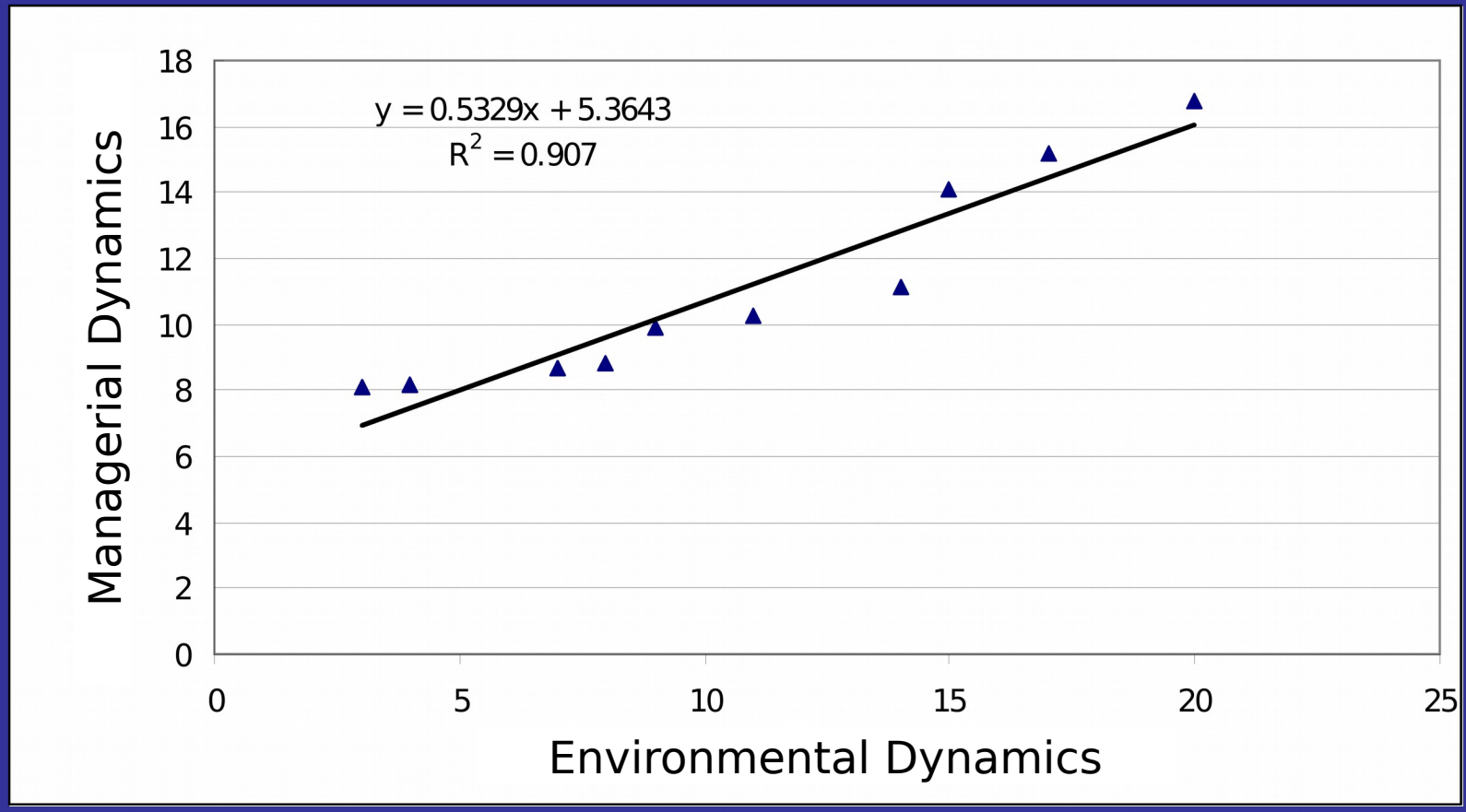
- Incompleteness of planning during construction
- Frequent changes in planning during construction
- Weather influences
- Special and unfamiliar technology

Speed

- Special time pressure

Special

Relationship Between Environmental and Managerial Dynamics



Telem, Laufer, Shapira, 2006

The Accepted Premise

“Define the problem, then solve it.”

“Objectives first, means later.”

?Is it always valid

!It is almost always NOT valid

"The argument that goal development and choice are independent behaviorally seems clearly false.

It seems to me perfectly obvious that a description that assumes that goals come first and action comes later is frequently radically wrong.

Human choice behavior is as much a process for discovering goals as for acting on them."

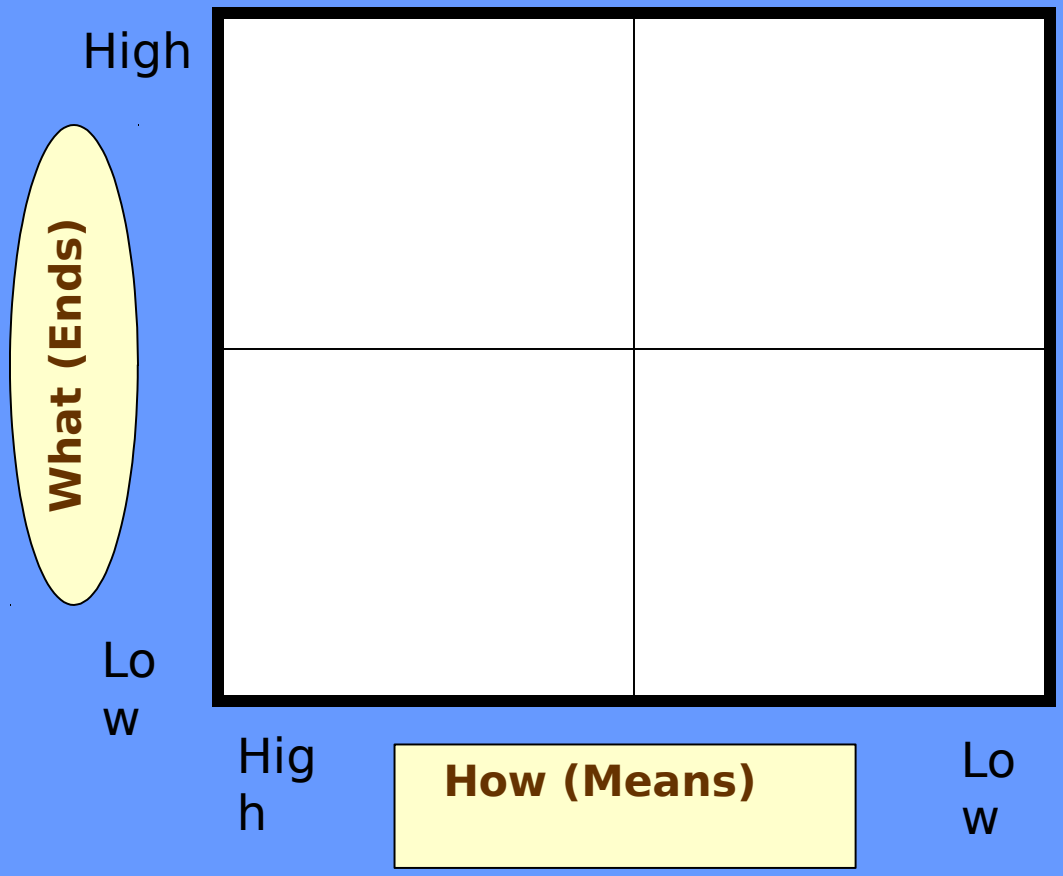
J.G. March, 1976

Requirements for an Automatic Teller Machine (ATM)

Junior Project Managers	***Senior Project Managers***
Provide money in the form of $20 bills with no fee & warn Home Office of empty conditions at least one hour in advance of becoming empty	*Functionality*
Minimal annual maintenance, no breakdowns	*Reliability*
Communicates with the Home Office continuously including a video feed	*Security*
Accepts at least 10 major credit cards, operated in 6 major languages with complete instructions provided for a withdrawal transaction including printing the receipts in less than 60 seconds	*User-freindly*

Michelle Collins, NASA

Uncertainty Matrix



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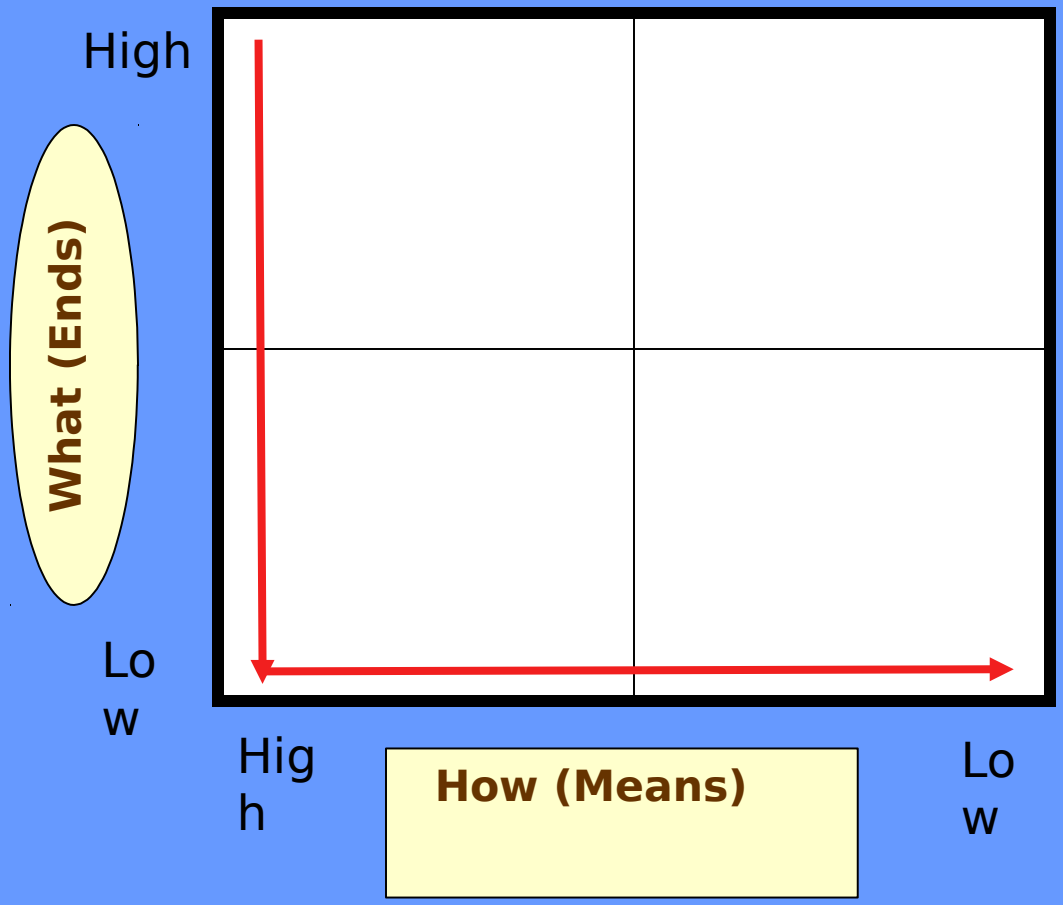
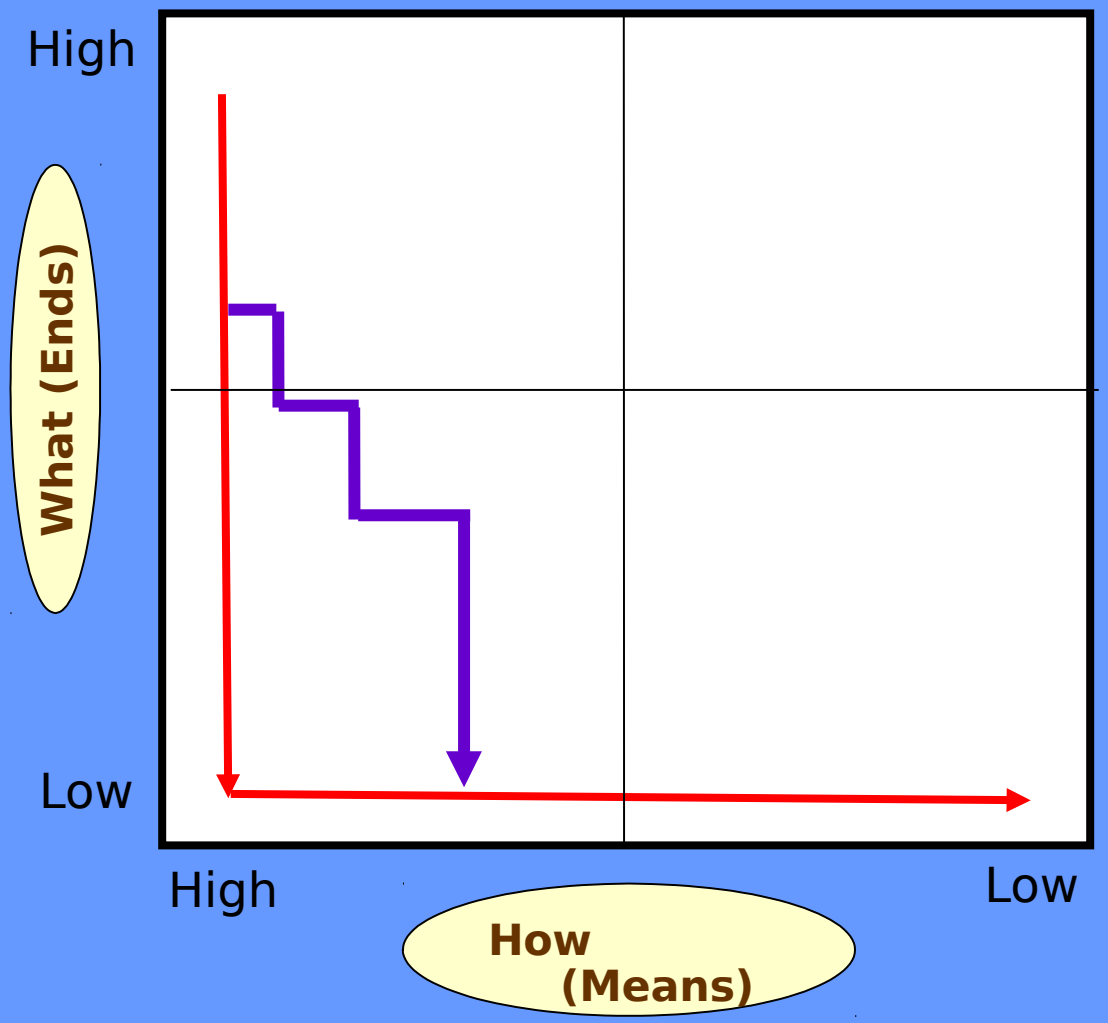
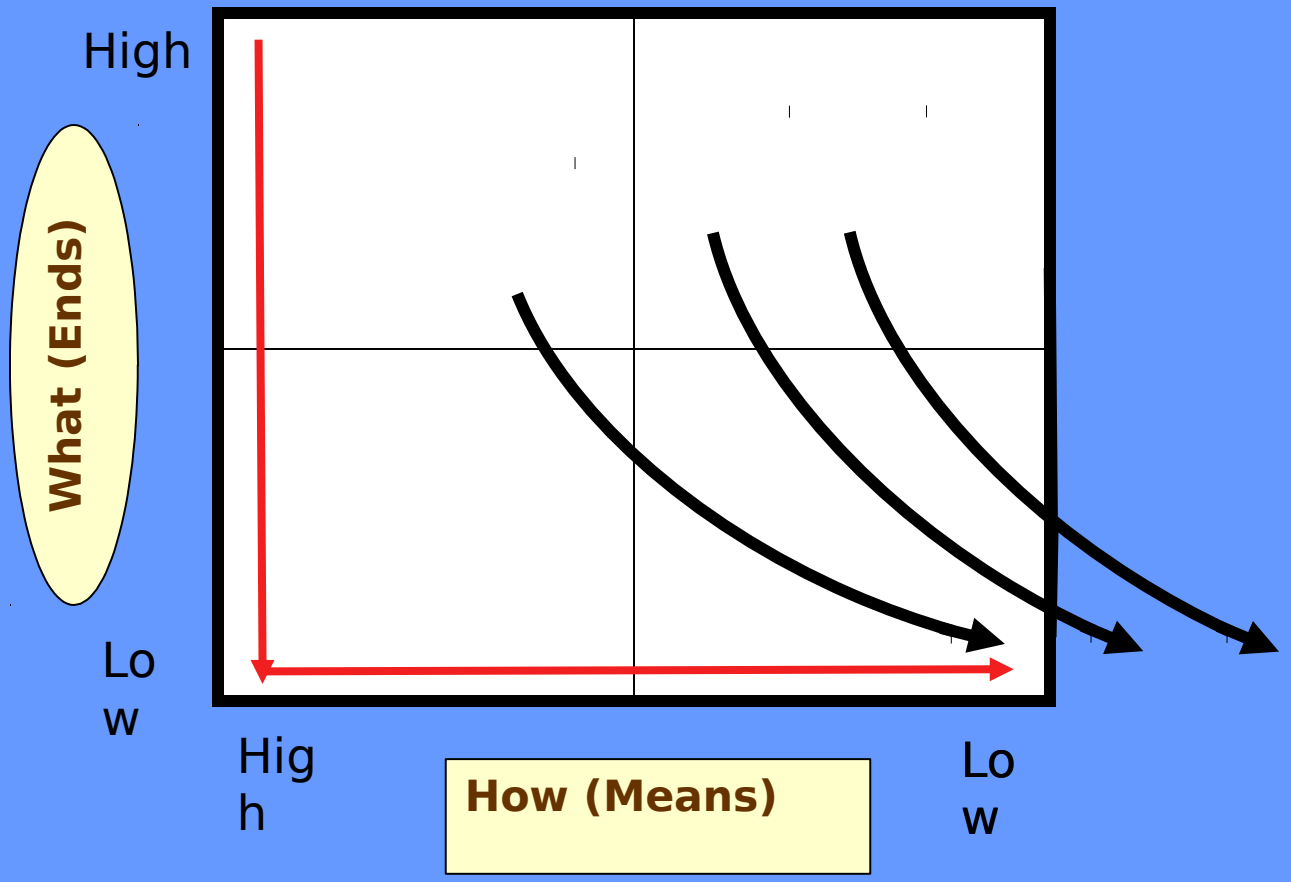
Old Paradigm



New Paradigm



Old Paradigm, Actual Situation



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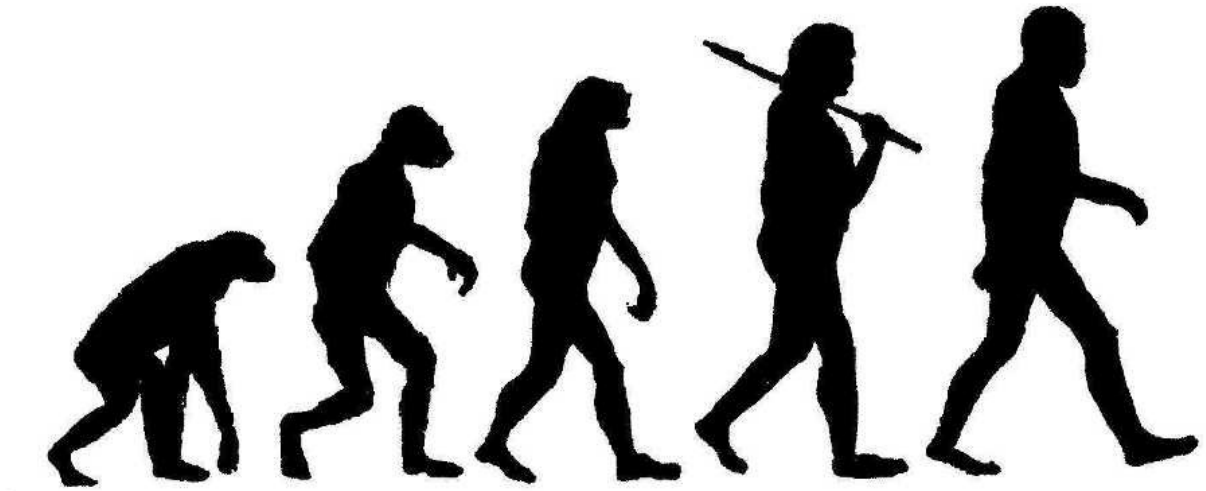
“Permanent White Water”

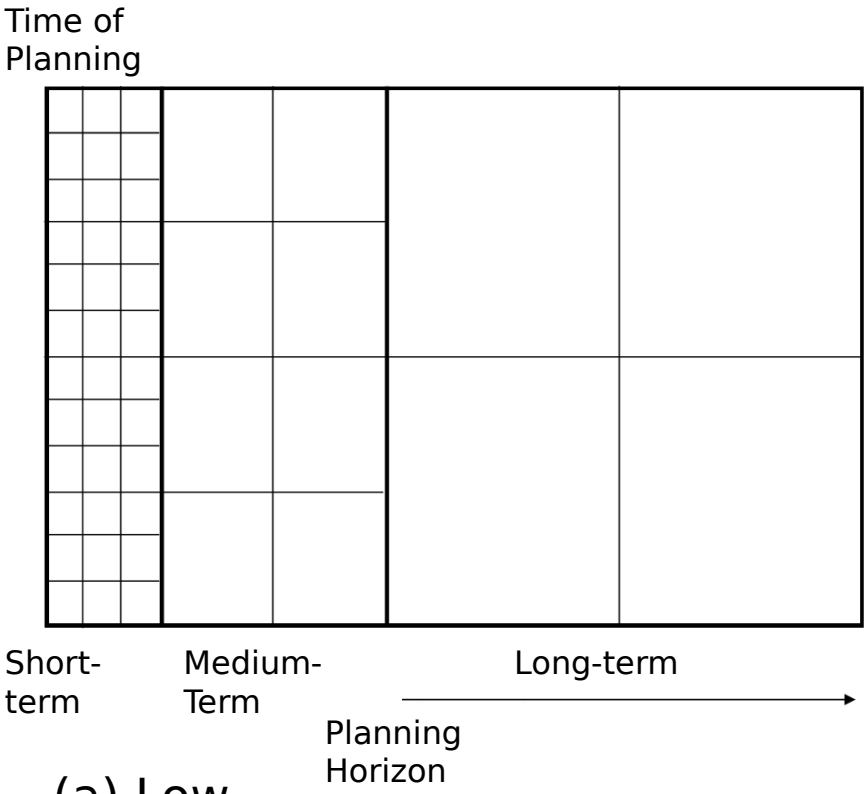
Project Management: Performing according to Plan, with Minimal Changes

Coping with Changes: Updating the Plan

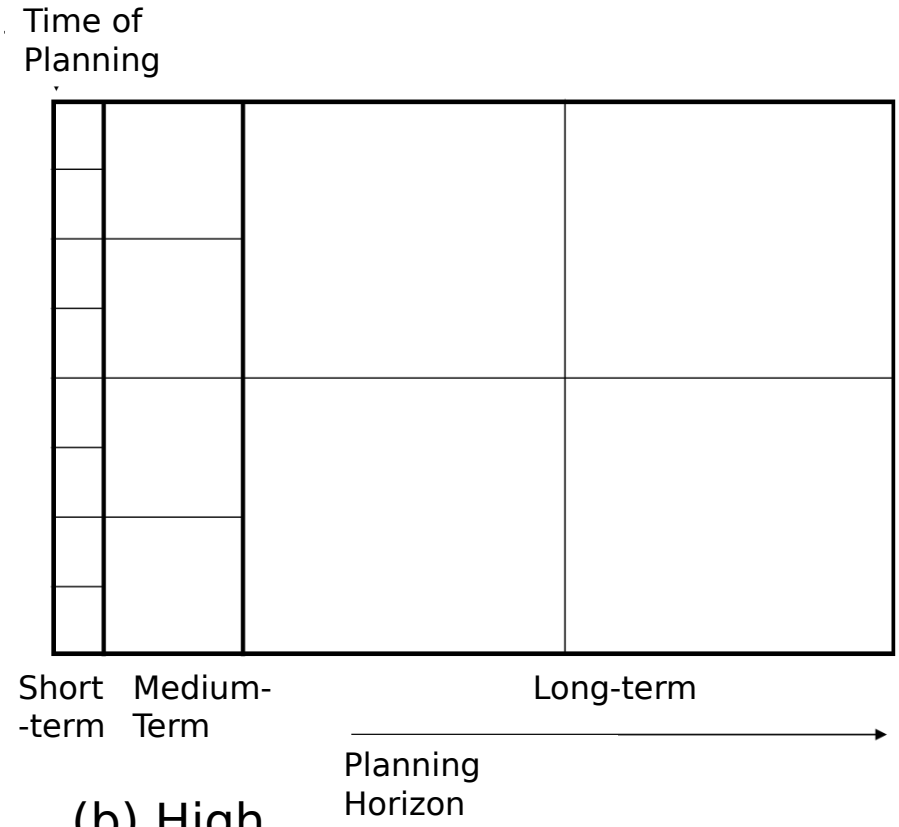
Continuous Adaptation



Influence of planning horizon on degree of detail



(a) Low uncertainty



(b) High uncertainty

The Five Principles of Managing Projects in a Dynamic Environment

Essence of the Principles

The Human Metaphor

What makes for a successful project manager?

"Like most of us, I've had to think hard about what makes for a successful project manager… Project managers need the ability to: plan, schedule, budget, monitor, control, etc., etc., etc… I have a hard time with these lists. Of course these abilities matter, but for me just one stands out as the defining characteristic of any good project manager… his or her willingness to challenge the conventional way of doing things."

Ronald Heifetz's Classification (*Leadership without Easy Answers*)

- **Technical problems:** Can be solved with knowledge and procedures already at hand, can be fixed by following a known series of steps.
- **Adaptive problems:** Not well-defined, do not have clear solutions, often require new learning, innovation, and changes in patterns of behavior.

Example 1
Challenging the Status Quo: Adjusting to the Context

Define project objectives while quickly exploring the means

Project manager & organization: Terry Little, US Air Force.

Background: Terry just replaced a previous PM & needed to obtain quick approval for the formal project requirements; project was lagging behind.

The adaptive problem: Exploring the **means** in order to better define the requirements was not the norm and would not be supported by the sponsor or even by Terry's own team.

Exhibiting adaptive capacity and challenging the status quo: Ignoring the possible resistance of the sponsors, Terry held weekly meetings with representatives from each of the five companies competing for the contract in order to learn about the suitability of the requirements from the implementer's point of view.

Results: Gradually, Terry was able to get the contractors to trust him and provide him with candid feedback.

"… we can do that, but it's going to take a really long time to go through all of the engineering details. If we could just start off putting it on one or two planes and get this thing built and fielded, and then modify it if we need to, we would be much better off in terms of overall cost, overall schedule, and overall performance. Give us a problem that we can work, and then add this additional scope after that."

Requirements were changed accordingly.

Not only was the contract awarded on time, but the actual cost per unit was significantly lower than predicted.

Expect the Unexpected

In today's dynamic environment, "***putting out fires***" occurs more often than the old mindset of management would like us to believe. No planning procedure can completely remove the element of surprise.

> ***"I build a project a hundred times in my head before we start work on it. I put formal plans into writing, but I also try to work through every scenario I can think of in advance to have everything lined up like dominoes, with all the details in place. But things still go wrong."***
>
> *Christian Zazzali, project manager,*
>
> *HITT Corporate Interiors*

Example 2

Challenging the Status Quo: Adjusting to the Context

Create a results-oriented focus

Project manager & organization: Larry Lawson, Lockheed Martin

Background: *"I remember realizing that we were going down the wrong road. We were moving ahead with a performance-oriented agenda. We had to change what we were doing and drive everything toward affordability."*

The adaptive problem: According to Lockheed Martin's standard practice, Larry should have used another unit within the company for production. More over, production at the Lockheed Martin facility would have involved lower risk and guaranteed superior quality.

Yet, the focus on results and deliverables, dictated that he deviate from the company's standard practice and find a more affordable supplier, and quickly.

Exhibiting adaptive capacity and challenging the status quo: Larry decided to move quickly. His team creatively managed to transform a small company that had been a baseball bat manufacturer into a cruise missile supplier.

Later, they did the same thing for their missile wings by finding a company that built surfboards and buying the equipment for them to produce cruise missile wings using surfboard technology.

Example 3

Challenging the Status Quo: Shaping the Context

Employ a variety of communication mediums, with face time as top priority

Project manager & organization: Frank Snow, NASA

Background: Frank Snow, the Manager of the Ground System and Flight Operations of ACE (Advanced Composition Explorer) at Goddard, believed his team was best equipped to train the users who were 2,300 mile away at Caltech.

The adaptive problem: ***"So I offered our help. One of the Co-Investigators at Caltech, however, was terribly suspicious of the Goddard project office. Almost any help we offered to make his life easier was, he believed, a ruse to take control of his instrument. As appreciation for my offer, he sent me a blistering email that basically said, in 300 words no less, 'Hell no!'"***

Exhibiting adaptive capacity and challenging the status quo: Frank decided to fly across the country to Caltech for a face-to-face meeting.

Results: This face-to-face communication went a long way towards overcoming any resistance. Frank was allowed to send the Flight Ops team to Caltech to provide training. Moreover, this was the beginning of a fruitful relationship that last for the

Challenging the Status Quo: Adjusting & Shaping the Context

- The activities of ten highly successful on-site construction project managers were systematically observed for one week.
- The project managers spent approximately 40% of their time on identifying and solving project problems.
- Each project manager had to cope with about 100 problems on average every week.

- Most of these problems were of a technical nature requiring only 1-3 iterations until they ***"left the project manager's desk."***

- About 8 problems each week were more challenging and required between 4-15 iterations.

- These were primarily adaptive problems requiring the project manager to challenge the status quo by either **adjusting** the project plan and practices to the new project context, or by **shaping** the project context to fit the current needs of the project.

The underlying reasons for the need to challenge the status quo

Dynamic environment

Temporary project organization with heterogeneous units

Unique and often innovative tasks

To Challenge the Status Quo Project Managers:

- Neutralize resistance
- Experiment with innovative practices
- Mobilize people to make difficult adjustments

Leading a process of change

Projects must be led, not just managed

- Some problems in today's dynamic environment are **adaptive.**
- To address them, the project manager must be willing and able to **adjust** to or even **shape** the project context itself.
- This often requires that the project manager *exercise leadership by* **challenging the status quo.**
- Situations when the PM decides to challenge the status quo, while not frequent, are the defining moments that establish the PM's leadership.

Projects must be led in order to be manageable

- Exercising project leadership does not mean abandoning the need for project management.
- By challenging the status quo when necessary, the project manager is able to cope with adaptive problems while maintaining project stability – and therefore its manageability.
- The five principles are the drivers;

Key Factors for Successful Project Management in a Dynamic Environment

- People
- Learning and reflection
- Adaptive capacity (contextual intelligence)
- Courage
- Judgment
- Trust
- Systems adapted to the context
- Results-oriented

"**Thinking** well is wise;
planning well, wiser;
doing well, wisest and best of all."
A Persian proverb